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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/797,972

03/10/2004

Yi Ding

M-15297 US

6257

32605

7590

03/31/2006

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EXAMINER

BOOTH, RICHARD A

ART UNIT

PAPER NUMBER

2812

DATE MAILED: 03/31/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

A

Office Action Summary

Application No.

10/797,972

Applicant(s)

DING, YI

Examiner

Richard A. Booth

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 25-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 25-32 is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10 and 11 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Terminal Disclaimer

The terminal disclaimer filed on 09/22/05 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of application 10/798,475 has been reviewed and is accepted. The terminal disclaimer has been recorded.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 4, 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Chung et al., U.S. Patent 6,787,415.

Chung et al. shows the invention as claimed including a method for manufacturing an integrated circuit, the method comprising: forming a plurality of first conductive gates 160 for nonvolatile memory cells, the first conductive gates being spaced from each other and not electrically interconnected; forming a plurality of conductive floating gates 120 for the memory cells; forming a plurality of second conductive gates 140 for the memory cells; and forming at least one conductive line 320 electrically interconnecting two or more of the first conductive gates (see fig. 3B and col. 2-line 27 to col. 6-line 19).

Concerning claim 4, note that the conductive line is formed after the first conductive gates, the floating gates, and the second conductive gates.

With respect to claim 7, the first conductive gates comprise a semiconductor material, and the conductive line is a metal line.

Regarding claim 8, note that the conductive line interconnects the first conductive gates for at least one row of the memory cells.

Concerning claim 9, note that the conductive gate lines are perpendicular to the conductive lines.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-3 and 5-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chung et al., U.S. Patent 6,787,415.

Chung et al. is applied as above but does not expressly disclose the order of formation of the gates and lines, the thickness of a dielectric to insulate the floating gate from the conductive line, forming at least one conductive line which provides the second conductive gates to at least two adjacent columns of the memory cells.

With respect to the order of formation of the gates and lines, the selection of any order of performing process steps is prima facie obvious in the absence of new or

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unexpected results (see *In re Burhans*, 154 F.2d 690, 69 USPQ 330 (CCPA 1946)).

Moreover, regarding the thickness of the dielectric, it would have been obvious to one of ordinary skill in the art at the time the invention was made to determine through routine experimentation the optimum dielectric thickness based upon a variety of factors including the desired degree of protection for the floating gate and would not lend patentability to the instant application absent a showing of unexpected results. With respect to interconnecting the second conductive gates with a line perpendicular to the one conductive line previously claimed, it would have been obvious to one of ordinary skill in the art at the time the invention was made to connect the select gates by a line running perpendicular to the at least one conductive line because in such a way columns of memory cells can be controlled.

Allowable Subject Matter

Claims 10-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 25-32 are allowed.

Response to Arguments

Applicant's arguments filed 3/9/06 have been fully considered but they are not persuasive. However, applicant's arguments with respect to the finality of the previous rejection are persuasive and the finality of that office action is withdrawn. Concerning

applicant's contention that the Chung et al. reference does not read on the claims, the examiner respectfully disagrees since it is clear that the conductive line 320 will eventually be part of an electrical interconnection between the gates 160. Furthermore, note that the rejection under 35 USC 103 should have been using the Chung et al. reference rather than the Roth reference.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

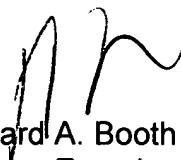
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A. Booth whose telephone number is (571) 272-1668. The examiner can normally be reached on Monday-Thursday from 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone

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number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Richard A. Booth
Primary Examiner
Art Unit 2812

March 27, 2006